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A NEW METHOD FOR THE DETERMINATION OF THE ALKALINITY OF THE BLOOD.

BY ARTHUR DARE, M.D.

Numerous methods for determining the alkalinity of the blood have been proposed, but they have required relatively large quantities of blood and have not proven trustworthy on use.

The alkali of the blood exists partly as alkaline salts (carbonate and phosphate) and partly in combination with proteid or hemoglobin.

The first class are known as readily diffusible alkalies, and the second as, practically, non-diffusible alkalies. The larger amount of alkali is present in the latter condition, the relative percentages of the two classes, however, vary, being modified by the influence of even very small quantities of acids, and of carbon dioxide, and also by the influence of the respiratory exchange of gases in the blood.

As Hammarsten in his *Physiological Chemistry* (1900, p. 159) points out: "The blood corpuscles give up a part of the alkali united with proteid to the serum by the action of carbon dioxide, hence the serum becomes more alkaline. The equilibrium of the osmotic tension in the blood corpuscles, and in the serum, is thereby destroyed; the blood corpuscles swell up because they take up water from the serum, and this then becomes more concentrated and richer in alkali, proteid, and sugar. Under the influence of oxygen, the corpuscles take up their original form again, and the above changes are restored."

From this it will be seen that the alkalies of the blood have important physiological functions, and variations from the normal standards must result when pathological conditions ensue.

It is very desirable then that some simple method be devised whereby blood alkalinity may be speedily and accurately determined; and this the writer believes he has accomplished by the invention of an apparatus termed a hemo-alkalimeter.

With this apparatus the alkaline blood is titrated with acid as usual, but chemical indicators to show the end-reaction are not employed, their use having been found altogether impracticable.

The quantity of blood used for such work must be minute and the quantity of indicator to be employed must of necessity be so small that the end-reaction becomes obscured by the coloring principles of the blood, hence the use of phenolphthalein, methyl orange, litmus or other indicators are wholly inadmissible.

In the series of preliminary experiments made, one very interesting fact was discovered, and this was, that when the alkalies in the blood were neutralized by added acid, the oxyhemoglobin bands of the spectroscopic field were first diminished in thickness until the point of neutralization was reached, when they disappeared entirely. Here then was a "*natural indicator*," and this phenomenon was then utilized as a means of indicating the exact point of neutrality.

As is well known, blood exhibits, when examined spectroscopically, the characteristic absorption bands of oxyhemoglobin, unless modified by the presence of certain gases or substances that change the composition of the blood. Under such circumstances we may have the blood spectrum of methemoglobin, carbon monoxide hemoglobin, etc., but the presence of hemoglobin will be still evident by the characteristic spectrum.

Oxyhemoglobin is recognized by two dense shadows which appear in the highly colored field of the spectroscope as parallel absorption bands between *d* and *e* of Fraunhofer's lines, the line nearest to *d* being darker, narrower and more strongly marked, while that next to *e* will be less sharply defined and broader.

When blood is titrated with an acid, and examined spectroscopically, the absorption bands of oxyhemoglobin disappear and cannot be restored by the addition of an alkali, clearly showing that the added acid has neutralized the non-diffusible alkali of the red blood corpuscles, as well as the more readily neutralizable and diffusible alkali of the blood plasma.

As acids decompose the carbonates of the blood and form carbonic acid gas, it has been believed that this gas decolorizes oxy-hemoglobin, but experiments made by myself show that this is not a fact; a blood and water mixture subjected to the continuous flow of carbon dioxide gas for an hour failed to modify the alkalinity or change the color concentration in the slightest degree, hence this gas in no wise influences the uncombined principles of the plasma, which latter are only neutralized by the direct action of acids.

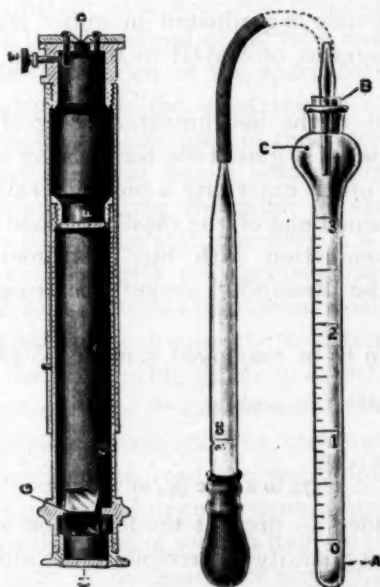


FIG. 1.—Hemo-alkalimeter about one-half actual size. *A.* Alkalimeter tube. *B.* Automatic blood pipette. *C.* Opening for the admission of air. *D.* Cleft of spectroscop, into which the alkalimeter tube is placed at the point of *A.* *E.* Cleft adjustment, *F.* Diaphragm to intercept reflected light. *G.* Nicol prism. *H.* Eye piece.

Description of Instrument.—The hemo-alkalimeter is made up as follows: The first part (*Fig. 1, B*) consists of a glass stopper through which passes an automatic capillary blood pipette containing 20 c.mm. by volume or 15 mgs. by weight (of normal blood), the exposed end of which is ground to a tapering point. The calibre of this little tube remains the same throughout. It may be remarked that a thick glass is used in the manufacture and presents the

advantage of being so ground as to afford a magnifying surface, in this respect resembling the clinical thermometer. This stopper and the contained blood pipette are fitted into a clear glass test tube (*Fig. 1, A*) containing 3 c.c., the upper end of which is expanded into a bulb containing on its side a minute opening (*Fig. 1, C*) for the purpose of admitting air. The top of the bulb is placed close to the stopper, allowing the capillary tube to pass to the centre of the bulb, this situation being selected as preventing an adherence of the blood between the sides of the test tube and the capillary pipette. The test tube is graduated in cubic centimeters, and the equivalent in milligrams of NaOH to 100 c.c. of blood also represented.

The second part of the instrument, *the reagent pipette*, consists of an appliance made of a glass tube terminating with a rubber bulb and having at its other extremity a piece of rubber tubing which fits over the sharpened end of the capillary blood pipette previously described. In conjunction with this instrument, a spectroscope should be used, the Browning pocket spectroscope answering all purposes.

The test solution to be employed is made up as follows:

Acid tartaric (Merck's reagent) gr. j.	·075 gm.
Alcohol, \mathfrak{z} v.	·20 c.c.
Aqua destil., q. s., \mathfrak{z} vj.	·200 c.c.
0·375 to a litre $\frac{1}{800}$ of normal.	

The alcohol is added to prevent the formation of fungous growth, but not in sufficient quantity to precipitate the albumin of the blood in any morbid condition.

Method of Employing the Instrument.—A drop of blood is obtained from the finger tip or lobe of the ear in the usual manner. The test tube is held horizontally, and its contained blood pipette fills automatically by capillary attraction when the sharpened end is touched to the blood-drop as it emerges from the wound. With an ordinary minim pipette, with a piece of rubber tubing over the free extremity into the test tube, wash this column of blood with distilled water up to the point 0 (zero), which is the first division from the bottom, holding the test tube vertically. Close the opening in the bulb of the test tube with the thumb and invert the tube several times, to cause a thorough mixing of the blood and water. The *reagent pipette* is filled with the acid reagent, and the rubber

tubing is fitted over the sharpened end of the blood pipette; by compressing the rubber bulb the acid solution is forced through the pipette into the test tube, the aperture in the glass bulb being closed before the pressure is relaxed to prevent the mixture of the acid solution and the blood. Having done this, the test tube is inverted several times while still being attached to the reagent pipette, care being exercised to keep the reagent pipette in a vertical position, to avoid a gravitation of the acid solution into the rubber bulb of the reagent pipette, thus preventing a chemical action upon the rubber nipple with the formation of a flocculent precipitate. The interval (*Fig. 1, A*) between the closed end of the tube and the first marking, 0, should be placed in the cleft of the spectroscope (*Fig. 1, D*) and observations be taken as to the existence of bands of oxyhemoglobin. Should these bands be present the careful addition of acid solution is necessary. As the bands become fainter and fainter we know that we are approaching the point of neutralization, and it becomes necessary to add the acid, one drop at a time; then invert the test tube and examine with the spectroscope as before. After performing several tests with this instrument it will not be necessary to apply the spectroscope so frequently to determine the point of neutralization, as the eye quickly learns to detect this characteristic change by the color of the blood mixture. When the bands of oxyhemoglobin suddenly disappear the observation is at an end. It is then only necessary to read the result from the scale on the test tube, which is graduated in cubic centimeters and the equivalents expressed in milligrams of sodium hydrate to 100 c.c. of blood.

As a uniform light is necessary for physiological experiments, artificial illumination should be selected as being always available. An open gas-light was employed in our experiments entirely, and the relation of the spectroscope to the source of illumination kept always constant.

The scale of equivalents computed from a basis of 15 mgs. of blood to 2 c.c. of acid solution, $\frac{1}{200}$ of the normal, is as follows:

c.c. of reagent	Mgs. of NaOH to 100 c.c. of blood.
2.6	345
2.4	319
2.2	292
2.0	266
1.8	239
1.6	212

1'4	176
1'2	159
1'0	133
0'80	96
0'60	79
0'40	53
0'20	26'6

It is not customary to express the alkalinity of blood by the quantity of acid required for its neutralization, but in milligrams of an alkali, sodium hydrate being generally selected for the purpose. The calculation will be as follows: The equivalent weight of tartaric

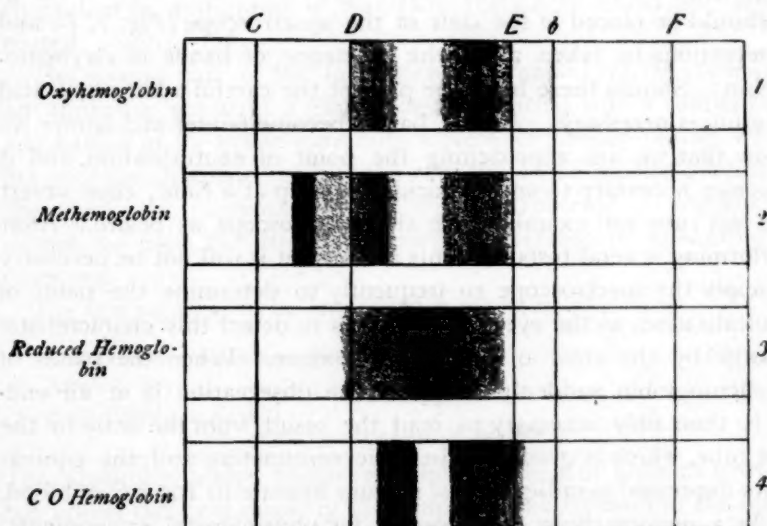


FIG. 2.—Blood spectra.

acid $\frac{\text{H}_2\text{C}_2\text{H}_4\text{O}_6}{2} = 149.64$. Tartaric acid being dibasic, one-half the number of molecules are taken to make a normal solution which equals 75 grammes (approximately) to a liter; for the present solution there is taken $\frac{1}{200}$ of the normal, which is equivalent to 375 milligrams to a liter. Sodium hydrate has 40 atoms to its molecule, which gives an equivalent of 30 grammes to a liter, therefore $\frac{1}{200}$ of the normal tartaric acid solution is equal to $\frac{40}{200}$ or 200 milligrams, and each cubic centimetre of acid solution will give an equivalent of 0.0002 milligrams of the alkali.

Every 100 c.c. of blood will equal 266 mgs. of sodium hydrate

The usual method of obtaining the results is to estimate by mathematical calculation the amount of alkali present in the blood; but this method has always proved itself to be both tedious and inconvenient, as it requires a decided tax on the memory to recall the various estimates as a working basis. In place of this rather intricate method, I would like to offer the following as its substitute: I have devised for this purpose a scale of equivalents, in milligrams of sodium hydrate to 100 c.c. of blood. Thus, should we employ 2.2 c.c. of reagent, the alkalimeter tube would indicate an equivalent of 292 mgs. of sodium hydrate to 100 c.c. of blood.

In enteric fever a marked decrease of blood alkalinity is the rule, a decrease in alkalinity is likewise observed in tuberculous disease with glandular involvement, and also in gastric ulcer, while gastric cancer shows increased alkalinity.

The anæmias show a decided fall in alkalinity.

In cases of chlorosis one very interesting fact was revealed in an attempt to increase the alkalinity of the blood by the administration of enormous amounts of sodium bicarbonate, in one case as much as 10 ounces (in divided doses) per diem being given, and this was, that while there was an increase in the number of erythrocytes, and the production of a turbid alkaline urine, the hemoglobin percentage was unaffected, and the alkalinity did *not* rise above normal.

The importance of this observation lies in this: that if true of conditions other than chlorosis, it is futile to attempt to alkalinize the blood by the administration of sodium bicarbonate, it must be done by other methods.

As to the exact clinical meaning of different alkalinities, little can be said at present. There is a more or less constant ratio between the color index and the alkalinity; this, however, varies, because as disease processes progress, the color index changes with the varying relation between the erythrocytes and the hemoglobin; even under physiological conditions, marked variations of color index and alkalinity occur.

In another paper (*The Johns Hopkins Bulletin*, Vol. XIV, No. 148, July, 1903) I have published a table giving clinical data in 75 cases of routine blood examinations made in Jefferson Medical College Hospital, by Dr. John Funke, resident pathologist; the table presents a number of points of special interest.

I will not go into technical medical details, as it will not interest

you as pharmacists, but as a matter of information you will doubtless like to know some of the more important findings.

In catarrhal jaundice, amyloid liver, croupous pneumonia, influenza, rheumatic fever, rubeola, appendicitis and cholemia an increase in alkalinity was shown, while in abscess of the liver and splenomedullary leukemia there was a marked decrease. In malaria the results were contradictory.

These studies that I report to you are admittedly imperfect, but they are sufficient, I think, to show that the factor of blood alkalinity in disease is very important, and one whose accurate solution in a large number of cases is going to throw a flood of light upon the present obscure chemical nature of many of the disease processes of the human body.

THE REACTIONS OF ALBUMIN WITH ACIDS AND ALKALIES.

BY JOSEPH W. ENGLAND.

Criticism has been made on the hemo-alkalimeter devised by Dr. Arthur Dare, the claim being that the various indicators and the various acids used in blood alkalimetry all give different results for the reason that "the power of the blood to neutralize acids is dependent upon free alkaline salts of varying kinds, and also upon the acid combining power of other substances in the blood, chiefly albumins. The peculiar alkaline salts present will be entirely included by some indicators, but not to the same extent by others. The acid combining power of the albumins will show varying values, depending upon the nature and the strength of the acid used."

The free alkaline salts in the blood are present as carbonate and phosphate, and it is true that these are neutralized by acids in different proportions (150 parts of tartaric acid, for example, require for neutralization 143 parts of sodium phosphate, or 168 parts of sodium acid carbonate), but the relative proportion of phosphate to carbonate in the blood may vary within narrow limits and make little practical difference in the estimation of total alkalinity.

Regarding the matter of indicators, it is agreed among chemists that the amount of a chemical indicator needed to induce a color change with an acid or alkali, varies with the indicator, and comprehensive data have been published showing the extent of such variations.

The fact has been apparently overlooked in the criticism that there is used in this new method of determining blood alkalinity, not a direct chemical indicator, but a physical indicator—the spectroscope—an indicator of such delicacy that it can show the presence of sodium in the sun 95,000,000 miles from this planet. Like chemical indicators, however, a certain amount of the acid is used up to decompose the hemoglobin, and to this extent the results given by the Dare method register too high.

So far as the diffusible alkalies of the blood are concerned, there is little doubt that these are immediately neutralized on the addition of acids to blood. That the difficultly-diffusible alkalies of the red blood corpuscles are neutralized, is shown by the elimination of the hemoglobin bands in the spectroscopic field. Whether or not the difficultly-diffusible alkalies of the blood-proteids are neutralized prior to any action they may exert on these albuminous bodies, can be answered only when we understand clearly the nature of the chemical action of acids and alkalies on albumins.

Recent researches have shown that the albumins of the blood have no real acid combining power or alkali-combining power, as has been thought. In other words, there are no acid-albuminates or alkali-albuminates in a true chemical sense, such as one would liken to the union of an acid with an alkali. Albumins may loosely combine with acids or alkalies in weak solutions without change of properties, but such combinations are apparently more physical than chemical, more intermolecular than interatomic. By the action of strong alkali solutions, the albumins are converted (with the elimination of nitrogen as ammonia and sulphur as alkali sulphide) into modifications called alkali albuminates, but these are clearly the products of disrupted molecules and radically different from the original molecules. In somewhat similar manner modifications may be obtained with albumins and acids (but without the elimination of nitrogen or sulphur), and these are the so-called acid albuminates, together with albumoses and sometimes peptones, the nature of the products varying with the temperature and strength of acid used.

Notwithstanding the fact that alkali and acid albuminates have certain reactions in common, Hammarsten (*Physiological Chemistry*, 1900, 32) believes that "The acid and alkali albuminates are essentially different, for by dissolving an alkali albuminate in some

acid no acid albuminate solution is obtained, nor is an alkali albuminate formed on dissolving an acid albuminate in water by the aid of a little alkali. In the first case, we obtain a solution of the combination of the alkali albuminate and the acid, and in the other case a soluble combination of the acid albuminate with the alkali added. Dilute solutions with alkalies act more energetically on proteids than do acids of corresponding concentration."

The albumins possess some very interesting physical features. If, for example, we take the white of an egg (the albumins of which are very closely related to the albumins of blood plasma, and its globulins to serum globulins) we find it consists of a frame-work of thin membranes enclosing a yellowish albuminous liquid of light density. The viscosity of white of egg is due to its membranes. Its gravity is 1.045, and it is always alkaline in reaction. Its albuminous bodies are mixtures of albumins and globulins together with a mucin. The albumins are soluble in water. On diluting white of egg with water the globulins separate, and on diluting it with four volumes of water the mucin is precipitated. I have observed, however, the interesting fact that if to 25 grammes of egg white there be added sufficient sodium chloride and water to make 100 c.c. of a 0.6 per cent. solution of NaCl, the globulins and mucin are brought immediately into solution. If the solution be saturated with sodium chloride, the globulins are precipitated.

The proportion of 6 parts per thousand of sodium chloride in water corresponds in strength with that of a physiologically normal salt solution, and the valuable therapeutic results following the injection of this solution into the body, in certain pathological conditions, is apparently due to the fact that the saline solution not only dilutes poisons in the blood by increasing the volume of blood plasma, but makes this increase under normal physical conditions whereby the globulins and mucin are kept in solution, and not under abnormal physical conditions, such as obtain with the injection of water alone.¹

In health, the amount of sodium chloride in blood plasma is re-

¹ On the ground that normal salt solution mixed with blood washes out the coloring principle of the red corpuscles into the blood serum (in which it is soluble) and is therefore objectionable, a modified formula for a "clinical saline solution" has been devised but is not generally used, which, it is claimed, does not do this. It is as follows (Harvey Cushing in "S. Solis Cohen's System of Physiologic Therapeutics," 1902, Vol. IX, p. 289):

markably uniform (6 parts per thousand). So closely is this rule observed that with food containing an excess of sodium chloride, the latter is quickly eliminated by the urine, and with food poor in chlorides, the volume of blood first decreases, but increases after taking chlorides from the tissues. The secretion of chlorides by the urine is correspondingly diminished.

May it not be that the alkalies of the blood perform important physical functions, especially the difficultly-diffusible alkalies of the blood-proteids? A solution of sodium carbonate in water will absorb and unite with 41.5 per cent. of carbon dioxide, forming sodium acid carbonate; and sodium phosphate, being an alkaline salt, may act in a parallel manner, and it is possible that these compounds act partially or wholly as reservoirs for the carbonic acid gas of blood. All foods contain inorganic compounds of no potential value as foods, but of paramount importance in tissue-metabolism. The presence of chlorides in the blood-serum, of iron in the red corpuscles, of phosphorus in nerve structure, and of sulphur in proteids, afford striking examples of this law.

The hemo-alkalimeter of Dr. Dare does not differentiate between the kind and proportions of blood alkalies. It is not perfect, nor is perfection claimed for it; but its application is certainly a step forward toward greater accuracy, and an improvement over the older methods of direct titration with acid and chemical indicators, or of titration with an excess of acid and then titration back with an alkali, or of adding alkali in sufficient quantity and then titrating back with an acid, or of dialysis and subsequent titration.

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SOME DATA ON GUM CHICLE.

BY FRANK O. TAYLOR.

Having occasion recently to make an examination of a sample of gum chicle, a search through literature for twenty years back revealed the fact that practically no data is to be found on this

Sodium chloride	9 gms.
Calcium chloride	0.26 gm.
Potassium chloride	0.1 gm.
Distilled water sufficient to make 1,000 gms.	

Dr. Aloysius O. J. Kelly, editor of the *International Clinics*, tells me that he used this solution, but employs one containing only 0.75 per cent. of NaCl.

subject; all that was found being some facts regarding its habitat, growth and collection, and indefinite statements of its solubility.

With this in view, tests were made on the sample at hand, which purported to be a purified gum, and the results of them are here recorded, in the hope that additional data may be elicited from other sources. It must be remembered that these tests were made on gum devoid of adherent, and included sand, fragments of wood and such impurities, hence these are not comparable with those from very impure gums. Further, the anomaly by which the term "gum" is applied to a purely resinous exudation must be kept in mind.

The tests made were for ash, moisture, solubility in various solvents, acid value and saponification value.

Ash, obtained by direct ignition of 1.0 gram of gum, amounted to 0.2 per cent.

Moisture was determined by carefully weighing about 1.0 gram into a tared wide mouth flask of 100 c.c. capacity and digesting with 25 c.c. ether at the room temperature till all that would have gone into solution and the insoluble residue was disintegrated. The whole was now put under a hot-air blast till evaporated to dryness, and then heated at 100° for four hours. The total moisture by this means was 2.2 per cent.

Solubility was found by leaving 1.0 gram in contact with 150 c.c. of the solvent for twenty-four hours with frequent agitation, then filtering through a filter dried at 100° and tared, washing the insoluble residue well with the solvent, drying the filter and residue at 100° and weighing. By this means its solubility in chloroform was found to be 82.7 per cent., and in benzol 84.7 per cent. In alcohol it was but slightly soluble, and that but slowly.

The acid value was determined according to the indirect method advocated by Dieterich, which, as applied in this case, consisted in dissolving the resin in chloroform, adding to this solution 20 c.c. of N/1 alcoholic KOH, letting stand for some hours at room temperature with occasional agitation and then titrating the excess of KOH by N/1 H₂SO₄. The acid value is expressed in milligrams of KOH, required to neutralize 1.0 gram of the substance, and was in this instance 52.

The saponification value determined after the manner used by the above-mentioned authority was applied as follows: 1.0 gram of

the gum chicle was boiled for 30 minutes under a reflux condenser, with 20 c.c. of N/1 alcoholic KOH, then cooled and excess of KOH titrated with N/1 H_2SO_4 . The saponification value found was 52, expressed as the Koettstorfer value for fats; that is, milligrams of KOH to saponify 10 gram of material. This, it will be observed, is the same as the acid value found, showing that all the saponifiable matter present is in the form of free acids. Gum chicle, therefore, does not contain any ethers or esters, and but a small quantity of free acids.

In synopsis the following facts are presented:

	Per cent.
Ash	0.2
Moisture	2.2
Soluble in chloroform	82.7
Soluble in benzol	84.7
Acid value	52
Saponification value	52
Ethers or esters present	None

SCIENTIFIC MEETINGS AT THE PHILADELPHIA COLLEGE OF PHARMACY.

By M. I. WILBERT,
Apothecary at the German Hospital, Philadelphia.

The scientific meetings that have been held under the auspices of the Philadelphia College of Pharmacy, must be considered among the most valuable of the contributions that this institution has made for the advancement of pharmacy along professional lines. That an opportunity such as has been, and is, afforded by these meetings, for an interchange of opinions and ideas and for the dissemination of a knowledge of newly discovered facts or theories is absolutely essential for progress in any line of professional work or investigation, will readily be admitted.

As an illustration of the advantage of publicity and concerted efforts, it will suffice to call attention to the progress that has been made in the science of chemistry since the underlying principles of that science have been liberated from the secrecy and mysticism with which they were surrounded by the alchemists of the Middle Ages.

That the founders of the Philadelphia College of Pharmacy appreciated the value of systematic investigations of, and the liberal

interchange of opinions on, matters relating to their trade or profession, is evidenced by the records found in the early minutes of the college meetings and the printed contributions in the *AMERICAN JOURNAL OF PHARMACY*.

By referring to the minutes of the college it will be found that at the first stated meeting after the organization of the college, a committee was appointed to inquire into and to report on, the desirability of recommending the then new *Pharmacopœia* of the United States to the apothecaries of Philadelphia. This committee, after a thorough examination of the book, made an exhaustive report on the deficiencies and shortcomings of this first official pharmacopœia, and also embodied in their report a number of suggestions for improving the book from a practical point of view. How far-reaching the report of this first committee on the national pharmacopœia really was, has been referred to in a memoir of Daniel B. Smith, presented at the meeting of the American Pharmaceutical Association during the past summer.

Another matter, that was considered to be of very great importance at that time, was the discussion and adoption of standard formulas for what were then known as patent medicines.

On May 22, 1822, at a meeting of the Board of Trustees, Solomon Temple, Daniel B. Smith, Charles Allen, Warder Morris and Dr. Samuel Jackson were appointed a committee to submit to the Board of Trustees, for their approbation, such prescriptions for the preparation of patent medicines as the committee deemed most appropriate. This committee appears to have had some difficulty in agreeing on a satisfactory line of recipes, for it was not until May 18, 1824, that Stephen North and William Baker were appointed a committee to procure the printing of 250 copies of the recipes for patent medicines.

This first unofficial formulary, a very unpretentious one, contained formulas for Hooper's female pills, Anderson's Scot's pills, Bateman's drops, Godfrey's cordial, Dalby's carminative, Turlington's balsam of life, Steer's opodeldoc, and British oil. It is quite probable that not a single copy of this first formulary is in existence at the present time. The report of the committee and the accompanying formulas were reprinted, however, in Volume 5 of the *AMERICAN JOURNAL OF PHARMACY* (1833, page 20).

To allow the members to come together more frequently, to dis-

cuss matters of scientific interest, monthly meetings were instituted in 1824. It was on November 10th, of this same year, that Dr. George B. Wood, then the professor of chemistry in the Philadelphia College of Pharmacy, delivered his stirring address to the members in which he pointed out to them a number of ways in which they might improve their profession and at the same time increase their own individual sphere of usefulness.

In December of the following year (1825) the first number of the JOURNAL OF THE PHILADELPHIA COLLEGE OF PHARMACY was published. The object of this publication, as announced in the introduction to this first number, was "To bring about a more rapid diffusion of information and to awaken and foster a spirit of research and experiment in an obscure and humble portion of the vineyard of science." Both the monthly meetings and the JOURNAL appear to have been a little premature, for, after the first burst of enthusiasm, which does not seem to have lasted more than six or eight months, the meetings languished and the JOURNAL was practically discontinued. This lack of support is well illustrated by the preliminary numbers of the JOURNAL. The first number, published in December, 1825, contains four communications that had been read at a college meeting, the second number contains eight, the third contains only one original essay, while the fourth number is composed entirely of selections from other sources.

The monthly meetings were, nominally at least, continued until November, 1837. For some years after the regular publication of the JOURNAL was commenced (1829) considerable interest appears to have been manifested on the part of the local members in the monthly meetings. A number of essays appear in the early volumes that had been read and discussed at a college meeting.

In the meantime an additional effort to hold regular meetings for the reading and discussion of scientific papers had been instituted by the students or undergraduates of the college. In 1827 these students had organized the Chemical Society of the Philadelphia College of Pharmacy, and held regular meetings in the college hall to read essays and discuss matters relating to general and pharmaceutical chemistry.

This was the third distinctly chemical society that has existed in Philadelphia, and merits more than the passing notice that we can give to it here. The minutes of the society are in the archives of

the college and bear witness to the earnestness and ability of these early students in pharmacy.

Among the names on the roll of members are: Dillwyn Parrish, later a successful Philadelphia apothecary and for many years president of the Philadelphia College of Pharmacy; George B. Coggeshall, who later was instrumental in founding the College of Pharmacy of the City of New York and served that institution in an official capacity for a number of years. He was also one of the founders of the American Pharmaceutical Association, was the first recording secretary of that association and later served as one of its vice-presidents; William R. Fisher, later graduated in medicine, occupied the chair of chemistry and pharmacy in the University of Maryland for a number of years, and in 1841 was elected to the chair of chemistry in the Philadelphia College of Pharmacy; Thomas H. Powers, whose name will be recognized by all as being intimately connected with the development of chemical industries in this country.

Quite a number of the papers, prepared and read by members of this chemical society, were subsequently published in the JOURNAL of the college. The meetings appear to have been discontinued after the third winter; several of the members of the society continued, however, to be regular contributors to the JOURNAL.

The college meetings, being held quarterly, were thought by some to be too infrequent for keeping alive an active interest in the scientific side of pharmacy. In 1841, another attempt was made to institute regular scientific meetings apart from the business meetings of the college. In December of that year a number of the more progressive members petitioned the president and members of the Philadelphia College of Pharmacy for permission to hold meetings in the college hall. These meetings were to be known as "The Pharmaceutical Meetings of the Philadelphia College of Pharmacy." An interesting history of this series of meetings, written by Mr. Thomas Wiegand, was published in the AMERICAN JOURNAL OF PHARMACY some years ago (1896, page 605). Since that time the college has come into the possession of the original book of minutes, which contains a complete account of the whole series of meetings, and also a record of the names of the attendants. This series of meetings extended from January, 1842, to March, 1860. The first meeting of the series was held on January 24, 1842, Mr. A. S.

Roberts, a member of the Board of Trustees, presiding, and Ambrose Smith acting as secretary.

A plan of organization was read and discussed. It was finally decided that the meetings be held on Monday evening of every other week from October to May, at 7½ o'clock, and that all papers read at the sessions be referred to a committee for examination, to be reported on at the next meeting.

At the election which followed, Dr. William Fisher was elected chairman and William Procter, Jr., was elected secretary of the Pharmaceutical meetings.

Considerable interest appears to have been taken in those meetings; they were well attended and the subjects presented or introduced for discussion were interesting and varied.

The last meeting of the season was held on May 9th, when the members adjourned to the following October.

At the stated meeting of the college, held September 27, 1842, the pharmaceutical meetings were reorganized. These meetings were, in future, to be considered an integral part of the college work, held exclusively for scientific purposes. Among other innovations the frequency and date of the meetings were changed to read "the first Monday in each month."

Under this new arrangement the first meeting was held on Monday evening, October 3d. At this meeting William Procter, Jr., was requested to act as assistant secretary, an office he filled consecutively for nearly ten years.

The meetings were held with considerable regularity for a number of years, usually from September to May, inclusive. The number and variety of subjects presented and discussed are evidenced by the published communications in the AMERICAN JOURNAL OF PHARMACY. Looking over the names of regular attendants recorded in the minutes one is struck with the fact that but few, very few, of these early workers are still with us. Of the hundred or more names recorded as being regular attendants not more than half-a-dozen are of men that are alive at the present time.

These minutes have also preserved an interesting bit of history that should be recorded; this is the fact that even at the inaugural meeting of the American Pharmaceutical Association, such of the delegates as were interested had an opportunity of attending a meeting at which scientific subjects were presented and discussed.

The minutes of the Pharmaceutical meeting, held September 6, 1852, close with the following paragraph:

"In order to obtain the presence of strangers expected on the occasion of the approaching Pharmaceutical Convention, it was concluded to adjourn until the evening of the 5th proximo.

"(Signed)

E. PARRISH, *Secretary.*"

From the minutes of the meeting held on Tuesday, October 5, 1852, we learn that among the visitors present were: C. L. Bache, of San Francisco, Cal.; G. D. Coggeshall, of New York, and S. M. Colcord, of Boston, Mass.

The programme for the evening was quite a lengthy one and included the exhibition and presentation of a number of books on chemistry and allied subjects, also the exhibition and presentation of several interesting specimens of drugs. Among the latter was a large specimen of guaiacum wood presented by William Hodgson, Jr. Edward Parrish exhibited a specimen of Swiss valerian that had been offered in place of the English root; he also showed a very fine specimen of Irish dulce. Among specimens of adulterated drugs E. Parrish showed a specimen of powdered opium adulterated with coffee or chocolate and containing less than 3 per cent. of morphine.

E. Parrish also described his method of making oleoresin of cardamom and piperoid of ginger; in connection with the latter preparation he also showed some specimens of "ginger drops" made by adding one part of piperoid of ginger to 300 parts of melted sugar, and running into moulds.

Wm. Procter, Jr., exhibited a new apparatus for making pills, and also described the method of working the same. As editor of the *JOURNAL* he also read a paper that had been prepared by James Betson, of the New York Naval Hospital, on "Prepared Cotton and Collodion." This contribution appears to have elicited considerable discussion. The consensus of this discussion is summed up by the secretary of the meeting in the statement that "the experiences of the different members in regard to these substances were found to be quite different."

The minutes close with the following statement: "After the discussion of many additional subjects of interest, among which was that of pharmaceutical reform, which is made the subject of a National Convention, to meet to-morrow, the meeting adjourned.

"(Signed)

E. PARRISH, *Secretary.*'

As noted before, Wm. Procter, Jr., served as assistant secretary for ten years. After his resignation in 1852, Edward Parrish was elected secretary and served consecutively to the end of 1855.

At the meeting in December, 1855, Mr. Parrish requested that a member might be appointed as register, to have charge of the business of the pharmaceutical meetings, issue the notices, record the minutes of the meetings and prepare them for publication.

Samuel S. Garrigues was subsequently elected and accepted the office of register. The remaining minutes in the book are signed by, or for, S. S. Garrigues, Register. The last record in the book is dated March, 1860, and is signed W. H. Pile, Secretary pro tem.

The subjects that were presented at these various meetings cover a very wide range. In addition to the numerous communications published in the AMERICAN JOURNAL OF PHARMACY, verbal communications and the presentation of specimens formed a very important part of the proceedings, many of the meetings being devoted largely, if not entirely, to what the secretary was pleased to call "social conversations" on matters relating to pharmacy. Considerable attention appears to have been devoted to the exhibition of interesting or new drugs and preparations. A close watch was also kept on the local drug market for any possible adulterations or sophistications, and these, when found, were promptly reported at a pharmaceutical meeting with all available details and data. This close watch on the local drug market had a salutary effect on the reputation of Philadelphia apothecaries, who were reputed far and wide as being far in advance of their fellow-tradesmen in other cities.

The Civil War brought with it a number of changes in the drug business of Philadelphia. In addition to the large number of young men who enlisted in the regular service, the demand for apothecaries in the army, as hospital stewards, was very great, and this in turn affected the available supply of good clerks for retail stores. When we add to this dearth of clerks the brisk trade in all classes of business, it will be readily appreciated why the pharmacists of Philadelphia had little time to devote to scientific investigations or pharmaceutical meetings.

Despite the fact that no scientific meetings had been held for a number of years, the constitution and by-laws of the college, published in 1869, retained the chapter relating to pharmaceutical meet-

ings, thus demonstrating that these meetings had been, and still were considered an important adjunct of the work of the college.

In 1870, after an interim of just ten years, the late John M. Maisch was able to interest a number of the younger members of the college in a project to revive the scientific meetings. The well-known ardor of Professor Maisch, coupled with the energy and enthusiasm of a number of the then younger members of the college, assured a permanent revival from the very start.

The first meeting of the new series was held on the evening of October 18, 1870. As an interesting coincident it may be stated that W. H. Pile acted as Registrar of this initial meeting.

During the thirty-three years that these meetings have been held the minutes have been regularly published in the JOURNAL. These published minutes, in connection with the written communications published in the same journal, constitute a very complete as well as an interesting history of the various branches of the sciences more or less intimately connected with pharmacy.

A number of the young men who a generation ago were instrumental in reinaugurating and popularizing this last series of meetings, are still alive, and are still active and regular in their attendance, thus striving to contribute their share toward the realization of the high ideals for a profession of pharmacy that prompted the founders of this institution, more than eighty years ago, to meet and discuss matters of scientific interest in their chosen occupation.

A TRIP TO BERMUDA.

BY D. E. BRANSOME.

Bermuda, or Somer's Islands, also commonly called Summer Islands, is a group of small islands about 600 miles east by south of Cape Hatteras or 700 miles from New York. They lie south of the Coral Reef, which extends about 24 miles in length from N. E. to S. W. by 12 miles in breadth.

It is claimed that Bermuda owes its discovery to a shipwreck of one Juan Bermudes, who lost his vessel on the reefs about 1522. Another notable shipwreck was that of Captain May, an Englishman, about seventy years later, followed by that of Sir George Somers, the latter having started to colonize the islands but died before accomplishing much. At the beginning of the seventeenth

century the Bermudas were a possession of the Virginia company. It is now a British colony and a naval coaling station for the West India squadrons, whose ships congregate there in the winter. The harbor is large enough to accommodate the entire British fleet, and the natives look forward to the coming of the vessels with their gayeties and circulation of money.

Bermuda is reached in two and one-half days after leaving New York. The Quebec steamship line practically controls navigation. To make a picturesque impression upon the tourist it is claimed that there is an island for every day in the year, or, in other words, they have 365 islands. I found it somewhat difficult to concur in this count, but as latitude is allowed to every poet it is possible that you will arrive at that number if you count every knoll or little rock projecting from the water and covered by a few shrubs.

The largest of these islands is Great Bermuda or Long Island, inclosing on the east Harrington or Little Sound and on the west Great Sound and protected on the north by the islands of Somerset, Boaz and Inland. The remaining islands of the group, St. George's, Paget's, Smith's, St. David's, etc., lie to the east and form a semi-circle around Castle Harbor. The reefs project some 20 miles out into the sea and are a source of constant danger to the navigator. The entrance to the harbor is very difficult and approaching vessels have to make almost a complete circle around the islands before entering it. The entrance to the harbor is so narrow that you can almost touch the rocky shore from each side of the vessel.

The islands are composed of a white granular limestone, which is very light and of various degrees of hardness. A great many caves are found as usual in limestone formations, many of them running far into the land and displaying a variety of stalagmites and stalactites. Streams and wells are noted by their entire absence, and the natives depend upon rain water for their supply.

The houses are built of this lime or coral rock and are one-storied, as a rule, with flat corrugated roofs, each corrugation, as a matter of fact, is a little gutter, which catches the rain and turns it off into a larger gutter leading into tanks. Architecture is very primitive and ornamental buildings do not exist. When a Bermudian wants to build a house he goes into an open lot, saws off a number of blocks of this stone, and by cementing them obtains a structure which is said to be of perpetual durability. In time the exposure

changes the color of the stone and it becomes a dull gray or a dirty dead white, which is very trying to the eye. The streets are paved with ground coral and limestone and present the same appearance.

The climate is fairly healthful, the ordinary death-rate being about twenty per thousand. Invalids claim it to be beneficial for all diseases. The temperature varies from 90° F. in the summer to about 65° during the winter months. The summer temperature does not appear to be very high, but owing to the formation and the surrounding water the humidity is great and the heat of an enervating nature.

Vegetation is rapid in its growth and the soil is covered by a perpetual green. The most abundant tree on the islands is the so-called Bermuda cedar, which is a species of juniper and is used extensively for commercial purposes. Hibiscus with its beautiful flowers forms a hedge on every road. "The Pride of India," another tree, is numerous. Royal palms, sago palms and cocoanut trees are abundant and add picturesqueness to the landscape, which soon becomes tiresome through its sameness. Oleander, in spite of all its beauty, is so numerous as to become almost a nuisance. The soil is very fertile and produces large quantities of plants and roots, the most notable among them are arrow-root, which is of a very fine quality; lilies, which are sent all over the world; onions, potatoes and tomatoes, the latter being particularly fine, although much smaller than our American fruit. Onions and potatoes owe their origin to American seeds. Among the medicinal plants the castor-oil plant and julep grow abundantly and without cultivation. The cultivation of coffee, indigo and tobacco has been tried but abandoned. Lemons and oranges also grow in fair quantities, but are of very poor quality. Limes are abundant and form a staple article of diet and commerce; bananas are prolific, the fruit being of a much smaller variety but infinitely sweeter and richer than the American. There are few animals on the island. Reptiles are represented by a small lizard and a small green turtle. Birds are very numerous. Insects are comparatively few, except large destructive ants and myriads of spiders, these being extraordinarily large and beautifully colored. Fish are plentiful and, like in all tropical waters, very large. There are no game fish. Two particularly beautiful specimens, the angel fish and amber fish, are rich in their coloring, the first representing all colors of the rainbow, which show splendidly in the water, but the colors seem to fade within a very short time after removal.

One of the most beautiful sights before approaching Bermuda is afforded by the wonderful blue color of the water, which is transparent to a great depth and of a limpid ultramarine shade. It is claimed that the coral formation of the ocean bottom is responsible for this. Flying fish, which jump out of the sea in hundreds, form quite an attractive feature. At night, as the prow of the steamer plows through the sea, myriads of little phosphorescent animalculi make a unique illumination, forming beautiful falls and cascades of which one never gets tired.

The estimated population of Bermuda is about 18,000, three-fourths of whom are colored, and in many respects are vastly superior to our American negro, being more intelligent and polite, in spite of the fact that the color line is not drawn so rigidly as here.

Of the industries it may be said there are none.

Commerce is limited; there is no export with the exception of lilies, onions and potatoes. Practically every ounce of food consumed on the islands is imported from America; other necessities, such as dry goods and clothing, glass and crockery ware, are imported from England, as the native merchants claim that the articles manufactured in America and bought in England are still cheaper than if bought in the States. I was informed by a prominent merchant that he imported the best grade of Portland cement from England 15 per cent. cheaper than he could buy it here in spite of the difference in freight. The main source of revenue of the islands, of course, is the British Government, which maintains a very large garrison on the various islands. The supplies are all bought in Bermuda.

The drug business is principally English in character, although in two of the stores a large business in ice-cream soda is done. There are four drug stores in Hamilton, two of which are doing a very large business; only one of the proprietors is registered and he is a graduate of the Buffalo College of Pharmacy. Not many patent medicines are sold. The prescription business is small, owing to the fact that the physicians to a large extent do their own dispensing. In justice to them it must be said that they have not learned this from their American brethren; they simply follow an old-established custom. One of the druggists boasted of his originality and of being up-to-date, in the American sense of the word, by pushing his own goods and establishing an original line of preparations. This line of

specialties he denotes as "Red Cross Remedies," and at the same time innocently informs the public that he is the sole agent for the Red Cross Chemical Company of Philadelphia.

Gibb's Hill Lighthouse is built of iron, is 133 feet high and stands 302 feet above the level of the sea. It is equipped with a revolving flash-light, which is claimed to show thirty miles out at sea. The mode of conducting business is easy-going and slow. The stores open between 8 and 9 o'clock in the morning and close sharply at 6. The currency is in pounds, shillings and pence and is a source of constant worry to the female traveller.

The drives are ideally beautiful, owing to the splendid condition of the roads, which, although narrow, are comfortable and clean. They are fringed on both sides by most beautiful trees and bushes, which form a continuous hedge and with the various warm colorings are a veritable feast to the eye. As far as one can see the hills are covered with luxuriant growths of all kinds studded with beautiful flowers. Banana groves form a peculiar sight. A sort of a cork-screw or spiral palm is frequently found on the roadside.

The naval yard, containing the largest floating drydock in the world, gives employment to some 2,000 workmen. The British Government is also constantly making improvements in connecting the various islands by either tunnels or bridges. As a naval coaling station Berinuda is of enormous value to England.

Modes of conveyance are primitive, being confined to walking or driving. There are no railroads or trolley lines in Bermuda; in fact, it seems to be the object of the British Government to keep Bermuda from advancing, and the laws regarding acquisition of property by foreigners are very stringent, no land can be sold or leased any length of time to anybody who is not a British subject.

EDITORIALS.

CHARLES RICE—AN APPRECIATION.

Thomas Purnell, in his essay on "Taking a Man's Measure," has shown how natural it is for each one of us to form estimates of the abilities of our fellow men and to pronounce upon their character. He has further shown how prone we are, after lauding a man to the skies, to condemn him in proportion as we have praised him, and to illustrate this he cites the case of Lord Byron. Recently in our

own country we have witnessed a more striking illustration of this tendency in the treatment of Admiral Dewey by his countrymen.

While perhaps it is not best to go to extremes in either our praise or blame of our fellow men, I think it can safely be said of Charles Rice that he was not only a unique figure in our profession, but a remarkable character among men. If we try to estimate his qualities by considering his published papers, his inventions or his discourses, we cannot but find many who are his equal and even his superior. It is Rice the man who attracts us, and not the tangible works which he has left us. In other words, he was greater than his works.

He was the master of a large number of languages; he was familiar with the methods and technic of a very large number of the sciences and arts; he had a presence and a voice as sympathetic and magnetic as that of any speaker I ever heard, and yet all these accomplishments were freely given that the work of others might be perfected. He went as diligently over a young author's book or paper as he would that of his own. He spared neither time nor money in the prosecution of researches which were to benefit those who applied to him for his counsel; and it seemed to be his special mission to harmonize the differences between the various factions of men with whom he came in contact.

The character of Rice sheds a new light on the meaning of life; he compels us to pull off the mask of achievement, material possession and so-called success, and to see that these, as they affect the life of the individual, are but impediments to his true progress and development, and ultimately a hindrance to his fulfilling the nobler purposes of life.

Dr. Rice's well-balanced life and the harmonizing influence which he exerted on the lives of others remind us of the words of the Chinese sage Tsze-sze, who says: "Let the state of equilibrium and harmony exist in perfection and a happy order will prevail throughout heaven and earth, and all things will be nourished and flourish." And, furthermore, from the philosophy of Tsze-sze it would appear that he had attained those qualities which made him an exemplar among men, that is, one "who shows himself quick in apprehension, clear in discernment, of far-reaching intelligence and all-embracing knowledge, fitted to exercise rule; magnanimous, generous, benign, and mild, fitted to exercise forbearance; impulsive, energetic, firm,

and enduring, fitted to maintain a firm hold; self-adjusted, grave, never swerving from the mean, and correct, fitted to command reverence; accomplished, distinctive, concentrative, and searching, fitted to exercise discrimination."

Need we wonder then that a monument has been erected over the grave of our friend in Woodlawn Cemetery and that a bronze tablet has been unveiled in his memory in the College of Pharmacy of the City of New York, and that other memorials of him are in contemplation?

THE DISSEMINATION OF PATHOGENIC MICRO-ORGANISMS.

When we consider the large number of abstracts of scientific papers on bacteriological subjects which appear not only in scientific and professional journals, but also in the newspapers, it seems amazing that the manner in which micro-organisms may be transported should be so little thought of, much less heeded, by the more intelligent, or even by those who are specially educated.

It is generally known that, with few exceptions, man, in view of his multitudinous activities, is the great distributing agent of disease germs. In some instances flies, mosquitoes, and even mice and rats are the direct carriers of pathogenic micro-organisms, and it is also conceded that they may be transmitted to man through the agency of food products, such as milk, oysters, certain vegetables, etc. Tuberculosis, diphtheria, scarlet fever, chicken-pox, small-pox, etc., are diseases that are almost entirely disseminated by man himself. No less an authority than Pettenkofer enunciated a truth quite early in the study of pathogenic micro-organisms that is worth remembering to-day: It is that "human intercourse will never be made germ-proof."

Nevertheless, it is highly important for the apothecary and physician to bear in mind the fact that inasmuch as they are so frequently in contact with the sick and diseased, too much care cannot be exercised to prevent them from becoming the agents whereby disease germs are disseminated. This might at first appear to be a subject too trite for consideration, but the still existing carelessness in regard to the simplest rules to be observed in the care of the sick in their relation to others, is ample warrant for calling attention to it.

That the clinical thermometer is more often a germ carrier than

would at first be conceded, some experiments made in the Bacteriological Laboratory of the Philadelphia College of Pharmacy, and to be published later, tend to show. In a paper¹ on "The Evil of Allowing Bottles to be Taken from the Sickroom Where There is Contagion," Theodore Campbell calls attention to the practice of returning bottles, boxes and ointment jars to the drug store for the renewal of prescriptions, and of sending such articles as atomizers, syringes, water-bottles, etc., for repairs, and points out how this practice may lead to the spread of contagious diseases. He thinks it should be an absolute rule not to allow any of the articles used where there is a contagious disease to enter the drug store, and recommends that in the case of the renewal of a prescription, this be done by number. In conclusion, the author remarks that he has no doubt that many of the cases of contagious disease which cannot be accounted for in any other way, arise as in the manner indicated.

While the author's suggestion must be patent to every one, we venture to say that the practice to which he alludes has not received the consideration which it demands.

A PROBLEM IN EDUCATIONAL WORK

There are many problems connected with both elementary and advanced education. Sometimes it may be questioned when we see the results of public school instruction, or lack of instruction, whether it might not be better to begin all over again and construct curricula in accordance with the spirit of the early settlers in America. In higher educational work, particularly in the training of students for professional and scientific careers, the subject of the preparation of the student for college is recognized to be deserving of as much attention as the perfection of the curricula.

While the academic training of the student must be considered to be the primary object had in view in the founding of institutions of learning, there is another phase of the educational problem which is of great concern to the student body and which plays even a more important part in the equipment of the graduate. This is the question which relates to the daily life of the student, and is one which has received considerable attention by the older universities both abroad and in this country.

¹ Presented to the Pennsylvania Pharmaceutical Association, June, 1903.

I have heard it said of Carlyle that his equipment for his future work was not derived from lectures or the inspiration which he received from the faculty of Oxford, but from her libraries. This fact is said to have caused Carnegie, who is intensely interested in educational work, to found libraries rather than universities. But apart from even libraries, collections, museums, art galleries and the many other institutions in large cities, which are stored with all the treasures that the wisdom, courage and enterprise of men have brought together for comparison and utilization in study, purposes of research and the development of mind and character in men, it is in the dormitory, the club-house of the university and the fraternity house of college men, or in their better associations with one another, where we observe the greatest development of the students taking place, physically, mentally and morally.

That the environment of the student has much to do with his advancement can not be denied, particularly when we remember the interdependence of the various attributes of man's nature, known as the physical, the mental and the moral. And while the influence which environment exerts on the lives of all of us is freely acknowledged, it would seem that we are a little slow in putting our beliefs into practical execution, that is, as they apply to student life.

While there may be at college some men of depraved tendencies, still this is unusual. Students usually have high ideals, and their associations tend to sustain and develop them. This is seen not infrequently in certain classes of men at college, or in large cities there will be a number of men who become alike distinguished.

All who are interested in educational work recognize the importance of proper associations in the development of the student. It is through the student's association that the real assimilation of his studies ensues, in that they become "flesh and blood" to him, and, further, it is through these associations that a certain culture is acquired, a love for virtue maintained, a feeling of patriotism ripened, and the man is made who will be a pillar of strength in the community and a blessing to his country.

In some classes of schools, as colleges of pharmacy, this phase of the student's education has been neglected until more recently, on account of the peculiar conditions in the manner of educating apprentices. Fortunately, the college club house, fraternity house, and similar social institutions are being developed. I had recently

the opportunity of attending the first reception and dance at the College House of the Philadelphia College of Pharmacy, and was surprised to see a house with all the advantages of a university dormitory, more commodious than any fraternity house, and better furnished and equipped than any similar college or university institution. The rooms of the students are interesting and show more or less individual characteristics.

Who can measure the amount of information of all kinds that is exchanged in these rooms and which is not a part of the curricula of the college, and who can say that a body of men thrown together in this home-life relation will not get more out of their college work than others not so fortunate? All who have had any extended experience in college and university work know that a house of this kind is as much a part of the institution's work as any laboratory, and that the association of the students among themselves under the most favorable circumstances is essential that the teachings of the faculty may see their fruition.

And while, as Thoreau puts it, the student is always alone, that is, when in pursuit of his studies, it is by these various associations that the man, the gentleman, is developed.

REVIEWS AND BIBLIOGRAPHICAL NOTICES.

A TEXT-BOOK OF ORGANIC CHEMISTRY. By William A. Noyes, Professor of Chemistry in the Rose Polytechnic Institute. New York: Henry Holt & Co. 1903.

This is a good book for beginners, being particularly strong in the clear and lucid presentation of the fundamental principles in organic chemistry. It has the charm of originality and has been developed as a result of the author's long experience as a teacher and investigator. Successful teachers are those who present facts from their own point of view and as influenced by their own experience. The manner of presentation is that of personal truths and the manner of treatment is to be weighed as such. The facts themselves, however, are the truths which are to be accepted.

The author has departed from the usual method of treatment of organic compounds, dividing them into aliphatic and aromatic compounds. He has given what in some respects is a simpler and more logical classification. The hydrocarbons are considered

first, *i. e.*, in six chapters are considered: Hydrocarbons of the marsh-gas series; ethylene series; cyclic hydrocarbons C_nH_{2n} ; series C_nH_{2n-2} , C_nH_{2n-4} , and C_nH_{2n-6} ; benzene series; and hydrocarbons related to benzene. Then follows a classification of derivatives of the hydrocarbons. Then the oxygen compounds are taken up: Alcohols and phenols; ethers; aldehydes and ketones; acids; derivatives of acids; hydroxyacids; ketonic and aldehydic acids; carbohydrates and glucosides. Then follow the halogen compounds; nitrogen compounds; sulphur compounds; heterocyclic compounds; alkaloids; and compounds of physiological and pathological interest.

Throughout the work are given structural formulæ both in the text and in connection with numerous tables. There is sufficient citation of literature to be helpful and lead students to become familiar with the important books and journals treating of organic chemistry. It might have been well to have included in the chapter on compounds of interest in physiology and pathology a few more citations from the books and literature on ferments, ptomaines, etc.

The book is of convenient size, well printed and substantially bound, and is to be commended to all interested in organic chemistry.

COLLEGE OF PHARMACY OF THE CITY OF NEW YORK.

RICE MEMORIAL MEETING.¹

At the regular meeting of the College of Pharmacy of the City of New York, held on Tuesday evening, October 20th, a bronze portrait tablet of the late Dr. Charles Rice was unveiled, and a copy of the resolutions passed by the New Jersey Pharmaceutical Association was presented.

The President of the College, Prof. Charles F. Chandler, presided, and the occasion was one for the gathering of a large number of professional and business men, not only from New York City but from places in adjoining States. Among the bodies represented was the Pharmacopœial Revision Committee, the following members of which were in attendance: Prof. Wilbur L. Scoville, Boston;

¹ The editor acknowledges the courtesies of the secretary of the College of Pharmacy of the City of New York, Thomas F. Main, and the assistant secretary, O. J. Griffin, in furnishing him with typewritten copies from stenographers' notes of the addresses made on this occasion.

Prof. Virgil Coblentz, Prof. Henry H. Rusby and Prof. Reynold Wilcox, New York City; and Prof. Joseph P. Remington, Prof. John R. Marshall and Prof. Henry Kraemer, Philadelphia. The New Jersey Pharmaceutical Association was represented by the President, George S. Campbell, Prof. H. J. Lohmann and others. There was a large representation of the New York German Apothecaries' Society, members of the staff of Bellevue Hospital, and members of the College of Pharmacy of the City of New York and its Alumni Association.

Dr. Chandler first called upon the Memorial Committee of the New Jersey Pharmaceutical Association and Mr. Campbell, the president, introduced Professor Lohmann, chairman of the Rice Memorial Committee, who presented the following resolutions and address:

"Mr. President and Gentlemen of the New York College of Pharmacy, the New Jersey Pharmaceutical Association greets you. The members of the committee that have been appointed for this occasion have journeyed here to meet with you on this solemn occasion, in this Temple of Pharmacy, to pay a tribute to the bright and illustrious author and educator, Dr. Charles Rice, whose works have immortalized his name. His name will be handed down to posterity together with Professor Procter and Professor Maisch triumphantly, and that we can refer to forever with pride. The masterly work performed by this man has certainly created within our hearts a feeling and a desire to establish for him a tribute that can be handed down to the coming pharmacists. Not only must the work be taken into consideration as he has performed it, but the manner in which he did perform the work is one of the essential features that we must always take into consideration. The bright and cheerful disposition, although firm, has created not only a feeling of honor and respect for him, but the conversion of the large duties into personal duties have converted this honor and respect into love. So extensively have these expressions of praise been uttered by great orators that at this moment we can only say amen to these expressions. The New York College of Pharmacy has indeed lost in Dr. Charles Rice an honored and a faithful member, a fact which we in New Jersey fully appreciate and we certainly extend to this institution a message of condolence. At a meeting held at Atlantic City, Mr. Beringer, of Camden, who, unfortunately, is not with us this evening, offered the following resolution, which was passed; and at the same

time extreme reverence was displayed in honor of the deceased. These resolutions were adopted unanimously and they are as follows:

"WHEREAS, In the decease of Charles Rice, Ph.D., on May 13, 1901, the New Jersey Pharmaceutical Association lost an honorary member whose services had added honor and renown to the profession of pharmacy; a member whose sterling qualifications, high moral character, scholastic and linguistic attainments, had endeared him to his friends and associates.

"WHEREAS, His energetic and his indefatigable labor enabled him to accomplish a colossal amount of work on the United States Pharmacopœia, and as chairman of the Committee of Revision for the editions of 1880 and 1890, he has indelibly impressed his personality on the book, and did much toward establishing the high scientific character that has placed our national standard in the fore rank of pharmacopœial authorities.

"Resolved, By the New Jersey Pharmaceutical Association, that in appreciation of his great services and the lasting effect of his example and influence in behalf of the scientific advancement of pharmacy, this minute be spread upon our records as a tribute attesting our high esteem of his worth, and the great loss that our association has sustained.

"Resolved, That a suitably engrossed copy of the above be prepared, properly attested with the signatures of the officers and seal of the association, and presented to the New York College of Pharmacy.

"Gentlemen, we now have the honor to deliver unto you this memorial in the name of the association, and we hope that it will stand as a lasting tribute to that bright and glorious light, Dr. Charles Rice, and that it will serve as an incentive for all of us and the coming pharmacists to step into the pale of this bright light."

In accepting the resolutions on behalf of the college Dr. Chandler said:

"Professor Lohmann, I wish to say to you and your fellow-members and the delegates from the New Jersey Pharmaceutical Association that the New York College of Pharmacy highly appreciates this act of your association; that it fully appreciates the fact that you realize how important a work and service has been performed by Dr. Rice, who was so many years a trustee of this college

and whom we are proud to claim as a member of our college. We cannot help considering that to us of New York particularly it is a compliment to the college, as well as to Dr. Rice, coming from such an association as the New Jersey Association of Pharmacists. It is a compliment which is earnest and substantial. I wish you would thank the members of your association for the College of Pharmacy."

The* secretary of the college, Thomas F. Main, announced that the evening was to be devoted specially to the memorial to Dr. Charles Rice, and that invitations had been sent out in the name of the president to the members of the Committee on Revision of the United States Pharmacopœia and others and that he had received letters of regret from the following: Dr. George F. Payne, Atlanta, Ga.; Dr. Willis G. Gregory, Buffalo, N. Y.; Prof. Walter H. Haines, Rush Medical College, Chicago, Ill.; Prof. Samuel P. Sadtler, Philadelphia College of Pharmacy; Prof. J. Uri Lloyd, Cincinnati College of Pharmacy; Charles E. Dohme, Baltimore; Prof. H. C. Wood, Philadelphia; Dr. E. H. Squibb, Brooklyn; Dr. Oscar Oldberg, Chicago; Prof. Charles Caspari, Jr., Baltimore; Dr. N. S. Davis, Jr., Northwestern University Medical College, Chicago; Dr. H. A. Hare, Philadelphia; Samuel A. D. Sheppard, Boston; and Dr. A. R. L. Dohme, Baltimore.

Dr. Chandler then called for the report of the Memorial Committee of the College, and this was presented by the chairman, Dr. Arthur H. Elliott, Professor Emeritus of Chemistry and Physics, who said:

"Mr. President, Members of the New Jersey Pharmaceutical Association and the College of Pharmacy of the City of New York, in the year 1868 there was elected to membership in this college a young man, twenty-seven years old, who had recently been serving the United States Government on one of its warships. Two years later this young man had proved himself so useful an acquisition to this institution that he was elected a member of the Board of Trustees. Very soon afterwards he became chairman of the Examination Committee of this college, which office he held for many years and under the auspices of four succeeding presidents of this institution. In addition to this he was for a number of years chairman of the Library Committee, where his erudition and scholarship spent its energy in producing the handsome collection of books we now own. In many other ways also this man helped the College of Pharmacy of the City of New York. He was on the Building Committee that gave us this handsome structure, second to none of its kind.

"As the years rolled by, we see a third of a century of his life spent in these noble works, until at last he was called to his rest.

"Many of us have had the good fortune to come into close contact with this man of self-sacrifice, energy and abundant learning, and who among us to-day has not felt (yes, does not now feel) his quickening influence, and cherish the most kindly memories of him. He was ever raising the standard of our college; he was ever extending her work. He was a shining light here, and his bright face lives with us to-day.

"Dr. Charles Rice, the man of whom I speak, was dearly loved by those who knew him best, and well may it be said of him—

"Green be the turf above thee,
Friend of our better days.
None knew thee but to love thee,
None named thee but to praise."

"In grateful remembrance of his noble work in this college and in recognition of his national services on the United States Pharmacopœia his friends have erected in this college a bronze memorial tablet to Dr. Charles Rice, and I have the honor to be selected to present it to this Institution. Mr. President, let us hope that the memory of his earnest life may be a stimulus to many of its Alumni and as enduring as the metal in which his features are cast.

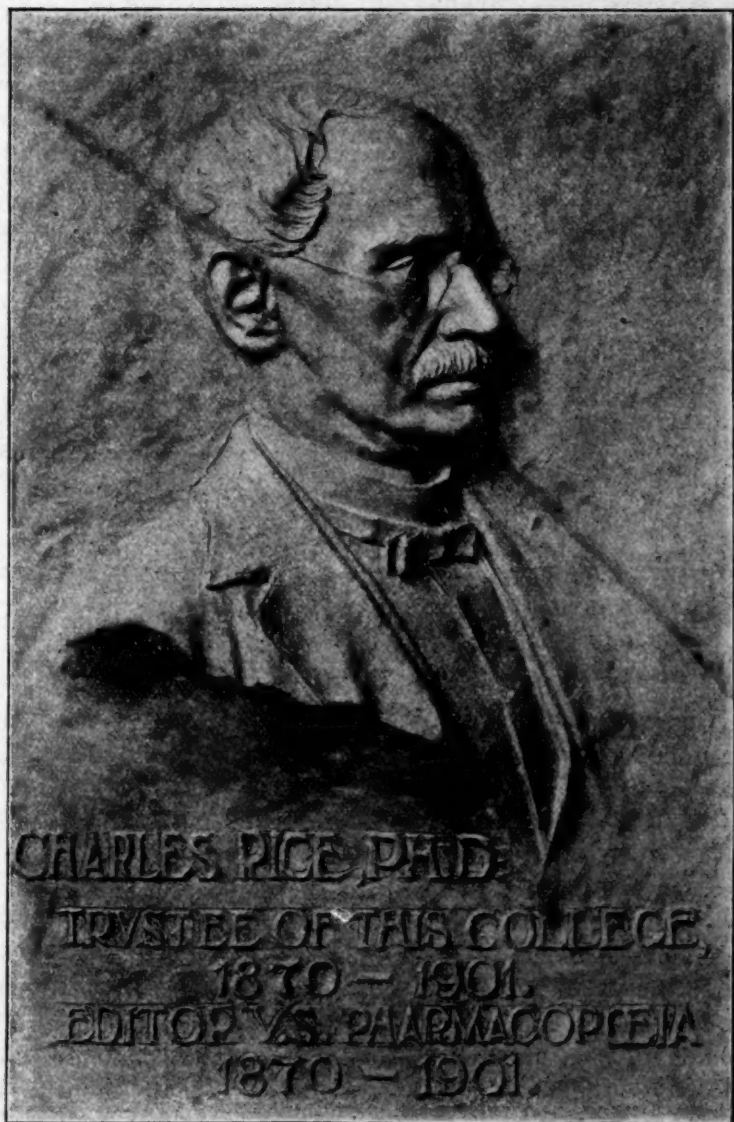
"This photograph, sir, is a fac-simile of the tablet to be found in the entrance hall of this college, and I pray that you will accept the bronze as a tribute to his memory from his grateful friends."

This memorial was received on behalf of the College by Dr. William Jay Schieffelin, who said:

"Professor Elliott and Gentlemen of the Committee, in behalf of the New York College of Pharmacy I accept with great appreciation this beautiful bronze portrait of Dr. Charles Rice.

"It is a worthy memorial of a distinguished man—a man whose constant and successful efforts have always taught the raising of the standard of quality in scientific education, in purity of the materials used in medicine, and in the character of the students of pharmacy.

"Dr. Rice hated shams. Himself one of the most modest of men, he had a contempt for false pretense, whether in men or in drugs; therefore, with unexcelled energy and a masterly knowledge of the science of pharmacy, he was able to perform great service to American medicine and pharmacy by his work on the Pharmacopœia, and



*A BRONZE TABLET UNVEILED IN MEMORY OF DR.
CHARLES RICE, IN THE COLLEGE OF PHARMACY
OF THE CITY OF NEW YORK, OCTOBER 20, 1903.*

to our college by his sympathetic but rigid oversight while serving for years on the committees on Examinations and the Library.

"Professor Lloyd has written of the versatility of Dr. Rice and of his interest in literature; I had the opportunity of seeing his public spirit and charity; for some years ago, when Bellevue Hospital was run in the interests of a political ring, he ardently desired and furthered the success of the reform party which was to prevent the cruelty to the poor which he saw daily and which grieved him.

"Gentlemen, you have done yourself and this college alike an honor by giving this beautiful and permanent memorial of a true man."

Various other speakers were then called upon. Prof. Joseph P. Remington, chairman of the Pharmacopœial Revision Committee, responded as follows:

"Mr. President, Members of the College of Pharmacy of the City of New York, I esteem it a great privilege to be with you to-night. I believe I am a member of this college. You are not strangers to me. I love to come here, and when your secretary invited me to come here to-night and say a few words to you, I did not see how it was possible for me to get away, but I have come. I am glad to be here. I believe I would go anywhere to bear tribute to the memory of one of the noblest men the sun ever shone upon—Charles Rice. I have had the opportunity, Mr. President, within the last two years of knowing as no other man can know, of the magnitude of this man's work. Mr. President, you know we are preparing a memorial volume to Dr. Rice, and it has devolved upon me to collect the material for the larger part of this work. When I have learned through authentic sources of the inner life of Charles Rice, I am amazed, Mr. President, at the amount of work that he was able to accomplish. Charles Rice was true and faithful in every position in which he was placed. From the very first, when he first entered Bellevue Hospital, his faithfulness, and particularly his desire to do his duty, even in the smallest particular, first called attention to him, and it was largely through this intense desire to do every little detail that he was called upon to do with the utmost fidelity, that he won his way at first, and those who read his life will find that in the latter years of his life, this same fidelity characterized everything that he did. It made no difference whether it was working out some obscure question in chemistry or some diffi-

cult or knotty problem in an assay process, or something connected with the Pharmacopœia that required great research. He would spare no labor, no pains to get it exactly right, and if one went to him for information, even a stranger, someone who had never seen Charles Rice, and whom he had never seen, and probably never would see again, he would sit down and write a long letter and explain to him the difficulty and make it as clear as noon-day. When we study his life we see how honest he was, how he hated sham, how he loved truth and loved truth for truth's sake. I can say, Mr. President, that Charles Rice laid down his life, he was a sacrifice to the altar of truth and honest conviction. Mr. Chairman, I know whereof I speak. I wish it were possible to record in this memorial volume the mass of material which we have secured. I wish it were possible to extend all over the country the knowledge of this man's life. We are going to do it; we are going to issue, I may say, Mr. President, for information, we are going to issue to his immediate friends and the subscribers to the fund a handsomely bound memorial volume, and then we are going to get out a popular edition of the work, and place it in all of the colleges of pharmacy and medicine in the United States (and I do not think it will be difficult to do so). I think they will be delighted to get this popular edition, so that we can have every student in every college of pharmacy in the United States put in possession of a copy of the life of this noble man. I am sure you will approve of that; I am sure there is not a friend of Charles Rice who would not love to see the record of his work, his self-sacrifice, his unselfishness. The whole man was permeated; it was a part of him, a part of his nature; he could not help it. If you went to him to get information, he was eager to tell you. Students could go to him at any time and get information. He knew nothing that he was not willing to tell to anyone, if it was upon pharmacy. The influence of such a man is something stupendous. We want to perpetuate, Mr. President, his name and work here to-night; we want to perpetuate the memory of such a man as this. When I come on here to New York, I never come through the city that I do not think of my dear friend. I never could come into this College of Pharmacy without feeling almost as if he were here. I know many of you feel in the same way. His spirit is here. I believe the memory of his life and the record of his life will be with you, fellow members of

the College of Pharmacy of the City of New York, as long as memory lasts."

Professor Reynold Wilcox, third vice-president of the Pharmacopœial Convention, spoke as follows:

"Mr. President, I could wish that someone whose acquaintance with Dr. Rice had been longer than mine had been chosen to speak to-night of the influence which Dr. Rice has had upon the medical profession; but as I look back upon five years of almost daily intercourse with Dr. Rice during the period of my service at Bellevue I can realize more and more that a long acquaintance was not necessary for one to understand what Dr. Rice was. The impression which he gave you of his thorough knowledge, broad learning and scientific enthusiasm needed not years for development. It was apparent to the earnest student who met him for the first time. As one reads the history of Dr. Rice's life it would seem as if he were almost possessed of the spirit of prophecy. If you will pardon me and allow me to go back scarce a quarter of a century to the days of therapeutic nihilism, when neither in New York nor in Berlin nor in Paris was there aught of consideration for the patient between the diagnosis and the autopsy; when studies in pathology were carried on to the exclusion of studies in therapeutics; when the nihilistic sentiment was so strong that that keen observer, Dr. Oliver Wendell Holmes, said once at a lecture at the Harvard Medical School: 'Diagnosis is important: pathological anatomy is important; but the *post mortem* examination doesn't tell you any more about the cause of disease than the ruins of the fireworks on the 5th of July tell you of the eloquence of the Fourth.'

"In the early 70's Dr. Rice was already making his reports on impurities and adulterations in chemicals, and pointing out ways and means to remedy this defect. As we go along a little farther we see during the early 80's an enormous development of specialties and it seemed as if the day of the practising physician was drawing to a close. Surgery was coming into unexplored and hitherto deemed inaccessible regions. The narrow specialties were developing very rapidly, and the physician seemed to be a thing of the past. What has been the result to the student of therapeutics? In the first place it has given the man—this physician-specialist—a greater and larger opportunity to know of remedial agents, and in the second place we are largely indebted to therapeutics in every

single specialty, including surgery itself; for take away from surgery anesthesia, a subject for study in therapeutics, take away antiseptics when asepsis is not possible, and modern surgery to-day is impossible. Pharmacy has played no unimportant part in the development of medicine to-day; it is its inseparable handmaid.

"Dr. Rice was not one of those who could tell us how things had to be done. He did them. He so mapped out the scope of the Pharmacopœia that in 1880 he became chairman of the Revision Committee. Again, in 1890, he was chairman of the Revision Committee, and it has been said, and I believe with truth and justice, that the Pharmacopœia of 1890 stood far in advance of any Pharmacopœia ever brought forth even under the most auspicious Governmental influences in any country, and to the chairman of these two committees all praise should be due. The physician, the general practitioner, is the jury before whom all special procedures and all surgical processes must pass. Charles Rice pointed out the defects and the means by which these defects in chemicals and drugs could be removed. In the two revisions of the Pharmacopœia of 1880 and 1890 Dr. Rice and his associates gave to the medical profession a standard broad enough and large enough so that any legitimate disease or symptom could be intelligently treated. Now for the 1900 Pharmacopœia, which opened under favorable auspices, but early in its work these hopes were darkened and the Revision Committee must mourn its loss; but the example of Dr. Charles Rice through two decades is an inspiration to every member of that committee to put forth his best and his noblest efforts. Things have changed. We see to-day, thanks to Dr. Rice's work, more interest in drug therapeutics than at any other time in the medical history of the day, and we see laboratories, public and private, devoted to investigation. We find men more eager to be trained in processes which may result in the healing of the patient, and in spite of the fact that now and then a doctor will proclaim his skepticism as to the use of drugs and say that in physical therapeutics, in water, air, he finds all that is necessary to cure disease, the physician who treats his patient conscientiously, for the good of his patient, knows that now, as it always has been and always will be, drug therapeutics will play an important part. We physicians recognize pharmacy as a profession, and physicians have as much contempt for the dispensing physician as the pharmacist has

for the prescribing pharmacist. Dr. Rice has done more to bring together the profession of medicine and pharmacy than almost any other person I could name—perhaps more than any other person I could name. He has set an example by his learning, industry and medical temper, to the investigating physician. Who could imagine that out of that drugroom at Bellevue Hospital, its chief overwhelmed with routine work in looking after the medical supplies of the enormous Department of Charities and Correction, and even of the Charities alone,—who could realize that a man to whom the ordinary toil of his work would prove beyond all his powers, could devote so much time to a work so thoroughly altruistic as pharmacy, who was always ready to aid any chance student or any one that came to him, and was able to keep up his own linguistic studies. Work nowadays does not come from isolation in a desert. The results of the work that Charles Rice did, tell us that he must have taken from his strength and sacrificed much of his time, which should have been devoted to rest, for the benefit of humanity. Medicine stands to-day the better, the more useful, the more scientific because of the life and labors of Charles Rice, and when pharmacy and medicine, which go hand in hand, as they are beginning to do, and shall be more and more necessary each to the other, the result which Dr. Rice did so much to bring about will be always associated with the man whose memory we meet to-night to honor, whose professional attainment and personal friendship are so dear to each and every one of us."

Mr. Felix Hirseman, on behalf of the New York German Apothecaries' Society, spoke as follows:

"Mr. President, Fellow Trustees and Members of the Fraternity: I esteem it an honor and a privilege to speak in behalf of the German Apothecaries' Association of the City of New York, of so high and distinguished a man who was an honorary member for many years in our society, and although it was not my privilege to have been much in association with the lamented, still I recognize with the poet that the deeds that men do live after them; and no doubt the deeds of Dr. Charles Rice have made their impression upon the pharmaceutical world; in fact, not only in this nation, but universally. I approached the doors, to-night, of our Institution and saw covered by the Stars and Stripes the medallion of Dr. Rice, and it occurred to me what a fit place that medallion held in these walls.

When the young student enters this institution of learning and sees that kind face beaming down on him, and although unknown to him, he will naturally ask, "Whose is this gentleman's face?" and it will be replied that this is Dr. Charles Rice; and if he wants a still more definite answer, our friends from New Jersey have inscribed it there on the memorial which they have presented us here to-night, and by reading that inscription they will thoroughly know who Dr. Rice was. That, I believe, is a right and proper deed for this college and for our New Jersey friends to do. The impression of the deeds and the work which the Doctor has done during his life-time, gentlemen, I am sure will forever be engraved on our minds and on our hearts and we will always behold in him one of the stars, one of the most devoted workers in pharmacy that this country has ever produced."

Dr. Chandler then stated that he would be very glad to hear from any of the other gentlemen present who desired to pay tribute to the memory of Dr. Rice.

Mr. Caswell A. Mayo, Editor of the *American Druggist*, said:

"Mr. President, in the various references made to Dr. Rice, everything was said of him as an investigator in pharmacy and that that was the portion of the work in which he took great delight and in which he shone with particular brilliancy. Nothing at all was said about his journalistic work. It has been my good fortune to follow him, and I have been called upon to trace out as far as I might some of his journalistic work, and throughout the columns of the pharmaceutical press during the last twenty-five years I have found most abundant evidences of that profound knowledge, that careful thought, that liberal division of his own time and work to the public ends, which has been so characteristic of him in his pharmaceutical work. As a journalist, I appreciate more keenly almost than anyone else how much of labor, of thought, of time, is involved in the routine work of which he did so large a share in journalism and for which so little return in popular appreciation or in financial returns are ever reaped. Dr. Rice's work in journalism was not of a kind which figures very largely in bibliography; in fact, one of the most difficult parts of the work in following Dr. Rice's work has been to distinguish, to find out how he has taken so much of his own time to contribute to the various pharmaceutical journals and the very great care which he took apparently. Still, his every act

is characterized by the almost shrinking modesty which has made him a worthy example for all to follow, and I wish to add in the name of journalism that tribute to his wonderful work in that field of endeavor."

Mr. Ewen McIntyre, Honorary President of the College of Pharmacy of the City of New York, paid the following tribute to the memory of Dr. Rice:

"Mr. President and gentlemen: I wish I had the gift to add to the words that have been spoken here to-night in relation to our friend Dr. Rice. It was my great privilege for many years to be in close association with him. I knew him well. He was ever and always ready to give any advice, any assistance, any knowledge that he had to any one coming to him and asking for it. That I know thoroughly. He had a faculty of arranging his times for doing his work that was very remarkable. For many years he spent his hour of vacation from Bellevue at our old college in Twenty-third Street, arranging the books and looking after the interests of the college, and taking up studies of his own at the College of Pharmacy, where he was so much interested. It was thought by the friends here in the college that it would be a proper thing to make him some little gift, and I will give you a little anecdote illustrating very largely the kind of man he was. The money required was subscribed. It was then found that he was very anxious to get a copy of the Sanscrit dictionary being published in England in parts. I had the pleasure of presenting him with it, and a few days after, going over to the college I met a man coming out, covered with red hair, a rough-looking character. When I went in I asked Dr. Rice who his friend was. He said, 'That is a Russian who is coming here now. I am taking lessons in Russian.' Here was a man, master of some twenty different languages, and then undertaking at that time of life to master Russian. It was not only his pharmaceutical side that was so remarkable; it was all sides; that he could speak things so easily, understand so readily, was remarkable. I do not think I ever saw a man with so many sides to him as Dr. Rice had. I do not think I ever worked with a man that was so kindly and who so easily fell into the ways to make whatever he is doing a success. A most remarkable man, and it gives me great pleasure, gentlemen, here to-night to hear the words that have been spoken. I feel that Dr. Rice deserves it all."

Mr. Charles S. Erb, president of the Alumni Association said:

"As a comparatively young man in the college as well as in pharmacy, and particularly as a young trustee, I did not of course come in contact with Dr. Rice as much as some of the previous speakers have, but I must say, whenever I had occasion to meet the Doctor and converse with him, everything that the former speakers said was exactly true. I did not like to encroach very much on his time, especially in so far as the Alumni Association probably had not occasion to call on him in very many particulars. The Alumni Association quite naturally always took a keen interest in everything connected with its Alma Mater, and certainly it is so to-day. One of the positions that the Alma Mater looked to, one of the positions that the members of the Alumni looked to, especially before they are eligible to membership, is the Examination Committee. It is quite necessary for a student of the college to have passed through the ordeals of the Examination Committee before he is graduated and after graduation admitted to the Alumni Association, and without doubt every student of this college who has appeared before that committee, so long as Dr. Charles Rice was connected with it would always have a kind word for the Doctor. They never once could say that he at any time was too harsh, but always wanted just exactly what was best for the student, and many of them can look back with kindness, not perhaps that they felt his individual presence, because very often the Doctor would work through another. The Doctor was the guiding hand on the Examination Committee and eventually things would have to pass his muster; but I feel confident that the members of the Alumni Association will always bear his memory in their hearts. I feel that they, as members of the profession of pharmacy, must certainly look upon his great work in the pharmacopœial revision as having raised the standard, and, naturally, members of the Alumni are constantly trying to do this, to always make corrections, to stand to-day in the top-notch of the profession."

Dr. Chandler then said: "We have with us Dr. Rice's pastor, the Rev. St. George Young," and then invited him to say a few words. Dr. Young said:

"Mr. President and gentlemen whom I may address: As the pastor of Dr. Rice I will only speak a few words with reference to his humanity. I am sorry to say I was not a close pastor of Dr.

Rice because he did not need me much; in other words, it would have been like a taper held up to illuminate the sun—much out of place. Whenever I had opportunity of personal conversation with Dr. Rice I was struck with his marvelous humility, his beautiful retiring nature, and yet the wonderful work he had in hand and never refusing to listen to the lowliest and to help the most unworthy. I will give you one instance. When I had known Dr. Rice about three years, and his knowing that I was anxious to obtain work for our poor people and a man that had been broken down that might be serviceable either with pen or otherwise, he asked me if I knew a man who could write a pretty good hand. I recommended to him one who had been secretary to a sporting club in London, a club of gentlemen. He was their secretary, kept their books, etc. The Doctor asked me to send him to him, which I did, and he put him in charge, I believe, of the record of one of the hospitals in the matter of surgical instruments and appliances; that is, in other words, he made out the requisitions and when the requisitions were furnished compared them with their invoices. This young man had been addicted, somewhat through family bereavement, to alleviating his sorrows with drink. Although he had given that up, he had taken to cocaine and other similar habits, but I did not know that until the year of the Doctor's demise. I learned from one of his friends that the Doctor had borne with this man almost to the day of his death, throughout his whole life, and not only borne with his shortcomings, but would actually take his own time at night to correct his reports and make them suitable or correct enough to send in at the end of the month, and they told me that for several months the Doctor actually did the work himself rather than have that man dismissed, and he was only one of several of the employees that were just carried by Dr. Rice, as it were, on his back, in his arms, and in his heart. He was the most human of all men I have ever known. He had a cook that was given to drink, but who was honest and had good qualities. He supported her for years. You all know Tommy, the messenger, and all that came in contact with the dear Doctor came to look upon him as a father and a brother and a friend. They were always spoken of as the Doctor's boys or the Doctor's men or the Doctor's women—women whom he carried through. When he died one of his friends was so borne down he could not live any longer, died forty-eight hours after; and three friends, men

whom the Doctor defended and bore with, died within a few months, broken-hearted because they had lost their only friend, the friend that they loved so well, and borne with them only as a really humane and Christian man could bear or would bear.

"His learning, his industry, his wonderful knowledge, the spirit of prophecy—he stood upon the highest pinnacle of what was right, and so there was naught to be defended, not only in pharmaceutical sciences, but other sciences. All were glorious and bright, but the sweetest and loveliest to me was the Doctor's wonderful charity, his wonderful humanity, a man who loved men simply because they were men and needed a brotherly and fatherly hand. This noble institution which he was instrumental in building and reorganizing very largely will be superseded, but his image is engraved in the hearts of all who knew him and loved him, and we hope to meet him and hear his praises spoken and speak of him on the other shore."

In closing the meeting, President Chandler said:

"It would be impossible for me to attempt to add anything to what has been said, but I must say that I cannot remember an occasion on which so many friends have gathered to express the opinion and appreciation of such a man of broad scholarship and industry combined with such humble modesty as was possessed by our friend."

PHARMACEUTICAL MEETING.

The first of the series of Pharmaceutical Meetings of the Philadelphia College of Pharmacy for 1903-1904 was held on Tuesday afternoon, October 20th, Dr. C. A. Weidemann, Secretary of the College, presiding.

In order to make the object of these meetings better known to those not members of the College, the committee having them in charge this year has issued a circular¹ stating the nature of the

¹Almost uninterruptedly since 1842 the Philadelphia College of Pharmacy has been holding annually a series of monthly meetings having for their object the presentation and discussion of matters of pharmaceutical interest.

When they were first organized it was directed that these meetings be known as the "Pharmaceutic Meetings of the Philadelphia College of Pharmacy" but in more recent years they have come to be known as the "Pharmaceutical Meetings."

meetings, and soliciting the co-operation of all those who may have an interest in matters of this kind. It should also be stated that the papers presented at these meetings are for the most part published in this JOURNAL and thus are conserved.

The programme of this inaugural meeting embraced a variety of topics, and attracted a goodly number of the pharmacists of the city as well as others connected with the College.

M. I. Wilbert, who is Secretary of the Historical Committee of the College, was the first speaker introduced and read a paper entitled "Scientific Meetings at the Philadelphia College of Pharmacy," exhibiting in conjunction therewith a minute-book of these meetings covering the period from 1841 to 1860, and also a valuable collection of photographs, including those of a number of the older drug stores of Philadelphia (see page 515).

Dr. Arthur Dare, of Jefferson Medical College, read a paper entitled "A New Method for the Determination of the Alkalinity of the Blood," and demonstrated the method of using the apparatus which he has devised for this purpose (see page 503).

Professor Kraemer remarked upon the scientific principles on which the instrument was based, and said that in this respect it

While formerly the interest in them was more or less local, this cannot be said to be strictly true at the present time, for not only are papers received from authors in other parts of the country, but not infrequently the speakers come from quite a distance.

There is no attempt made to conduct these meetings along special lines, but on the other hand the aim has been to make them of general pharmaceutical interest, and any one who is desirous of advancing the status of pharmacy in any one of its several branches, whether as teacher, research worker, retailer or manufacturer, is invited to participate in them by the presentation of papers; the exhibition of new and useful forms of apparatus; the exhibition of specimens of new and rare chemicals, pharmaceutical products, medicinal plant or drug specimens, food products, etc., or by the introduction of special topics for discussion.

The opening meeting of the series for 1903-1904 will be on Tuesday, October 20th, at 3 o'clock. You are cordially invited to be present, not only at this meeting, but at succeeding meetings as well.

WM. L. CLIFFE, Chairman.

CLEMENT B. LOWE.

JOSEPH P. REMINGTON.

RICHARD V. MATTISON.

HENRY KRAEMER, Secretary.

Committee.

differed from many of the other inventions employed in blood examination.

Joseph W. England read a paper on a related subject, namely "The Reactions of Albumin with Acids and Alkalies" (see page 510).

D. E. Bransome, of this city, gave an interesting account of a recent trip which he had made to Bermuda, exhibiting in this connection a series of photographs of scenes on the Islands, and also some specimens showing their natural characteristics (see page 522).

While not strictly of pharmaceutic interest, this account is published in part because of the general interest now manifested in certain of the West India Islands, and also because of their affording a field for the prosecution of biological investigations.

Prof. Clement B. Lowe presented some notes on the drug-store sink, as follows: In regard to the location of the sink, he said that it should not be on the prescription counter, but in rear of its center, and not in view from the other part of the store. The sink should be rectangular in shape, and he said that galvanized iron furnished a suitable material for its construction, although iron porcelain-lined might be considered more desirable. To prevent the accidental breakage of glassware, he recommended placing a heavy piece of sheet lead in the bottom of the sink. Slate or marble he had found to answer the purpose as material for the draining board, but a wooden board constructed of maple lumber was also recommended.

Theodore Campbell said that the sink in his prescription department consisted of a wooden box lined with sheet lead, and having a drip board on either side also lined with sheet lead. He said that this was only slowly affected by acids, a sink having lasted seven years, and could be readily cleaned with a cloth and a little coal oil. Mr. Campbell also suggested the use of goose-neck spigots, which were quite convenient for washing bottles.

E. M. Boring said that he had a soap-stone sink which had been in use about thirty years, and he remarked that he preferred to drain mortars on a framework of slats, so as to allow of the free access of air. With regard to this latter point, Mr. Campbell thought it better to wipe the mortars dry each time they were used and place them in a closet till needed again.

Charles Leedom said that the sink in his store was constructed

somewhat as Professor Lowe suggested, the space under the sink being fitted with shelves and used as a closet, the space above being utilized for the placing of certain pieces of apparatus.

Professor Kraemer called attention to a maranta plant which he had grown from a rhizome furnished him by Mr. J. W. Outerbridge, of Bermuda, and also to the following specimens of medicinal plants, partly on account of the rich colors of the leaves and fruits at this season of the year: *Puonymus Americanus*, *Vagnera racemosa*, *Phytolacca decandra*, *Cornus florida* and *Arisæma triphyllum*.

FLORENCE YAPLE,
Secretary pro tem.

PHILADELPHIA COLLEGE OF PHARMACY.

MINUTES OF THE SEMI-ANNUAL MEETING.

The semi-annual meeting of the members of the College was held Monday, September 28th, at 4 P.M., in the Library. The President, Howard B. French, in the chair. Twenty-six members were present. The minutes of the quarterly meeting held June 29th were read and approved. The minutes of the Board of Trustees for June 2d were read and approved.

The report of the delegates to the American Pharmaceutical Association at the meeting held at Mackinac Island, Michigan, August 3d to 10th, being called for, Professor C. B. Lowe (in the absence of the chairman, Professor Remington) reported verbally that a very extended report of its proceedings had already been published (see the AMERICAN JOURNAL OF PHARMACY, September, 1903, pages 416-452), and stated that any extended remarks were unnecessary. He said, however, that the attendance was very good and interest in the meeting well maintained. A subject that received considerable attention was the establishment of a Bureau of Pure Foods and Drugs, which had been referred to the Council for further consideration.

Mr. Boring alluded to the discussion that had taken place in the Commercial Section relative to the establishment of a three years' course in all colleges of pharmacy—the participants favoring such increase in time.

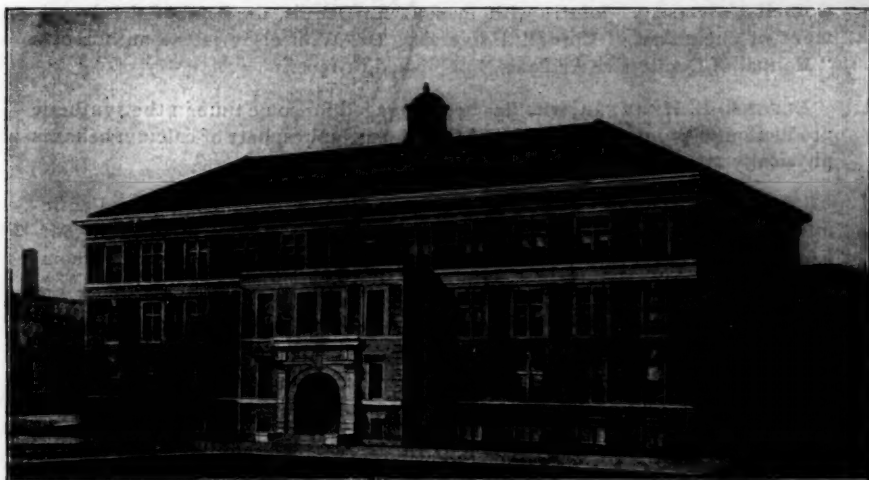
The Historical Committee, by its chairman, Mr. Beringer, reported verbally that they had done some work, but had discovered that there was not, as yet, a very accurate list of the graduates of the college available; but they hoped by adopting a card index system it would be a great help to them. Until this was arranged there would be some delay in the prosecution of the work.

The report of the Committee on Nominations being read the President directed that an election for three Trustees be held. Messrs. Wilbert, England and Osterlund were appointed tellers, who, after a ballot was had, reported that Mahlon N. Kline, William E. Krewson and Miers Busch had received the highest number of votes—whereupon they were declared elected to serve as Trustees for the ensuing three years. Adjourned.

C. A. WEIDEMANN, *Secretary.*

NOTES AND NEWS.

THE SCIENCE LABORATORY of Parke, Davis & Co., which has been opened during the past year and which is shown in the accompanying illustration, is thoroughly equipped not only for carrying on scientific work in connection with their products, but several rooms are fitted up for doing original research work entirely. The building is 160 feet long, 60 feet wide, and three stories high. The foundations are laid in concrete, resting upon piling driven from 35 to 40 feet below water level. The walls are of hard brick, faced with paving-blocks, the trimmings being of Bedford stone. The interior is supported upon steel columns, on which rest heavy steel beams, while the floors are of steel and concrete. Wood is used only for doors, windows and certain fittings. The stairs are of iron, and the hoist is enclosed in a brick shaft with fire-proof



doors. The building is devoted to investigations connected with the manufacture of serums, vaccines, toxins and organic products. In addition, their analytical and experimental department has been housed here.

PUBLIC PARK FOR MEDICINAL PLANTS—The Park Commissioners of San Francisco have set aside some five acres of ground in Golden Gate Park to be devoted to a Garden of Medicinal Plants, and this is to be under the management of the California College of Pharmacy and the Park Superintendent. This is a worthy undertaking and it is hoped that it will meet with success.

SAMUEL P. SADTLER, Professor of Chemistry in the Philadelphia College of Pharmacy, will deliver a lecture some time early in 1904 before the Society of Arts at the Massachusetts Institute of Technology. At the incorporation of the Massachusetts Institute of Technology the Society of Arts was created as a part of the Institute, coordinate with the School of Industrial Science. The objects of the Society are to awaken and maintain an active interest in the sciences and their practical application. Some of the foremost scientists have

lectured before the Society, and among the number who will speak during the winter is Dr. Alexander Graham Bell, who will deliver a lecture on "Aerial Navigation."

THEODORE WHITTELEY has been appointed Professor of General and Inorganic Chemistry in the School of Pharmacy of Northwestern University. He was born at New Berlin, Chenango County, New York, May 15, 1868; graduated at the High School of Saratoga Springs in 1886; entered Williams College that year, and in 1890 received the degree of A.B. from that institution. He was assistant in chemistry at Williams College in 1890-91. From 1891 to 1897 he was in charge of the department of chemistry at Pacific University, Forest Grove, Ore., but was absent on leave during 1893-95, studying at the University of Goettingen, where he received the degree of Ph.D. in 1895. From 1898 to 1903 he had charge of the laboratory of qualitative analysis at Cornell University. Jointly with Prof. L. M. Dennis, the head of the department of chemistry of Cornell University, Dr. Whittelsey is the author of a "Manual of Qualitative Analysis," published in 1902.

ALFONSO L. HERRERA, who has been engaged for some time in the synthetic production of protoplasm, has found that the metaphosphate of calcium behaves physically much like the protoplasm of protozoan.

J. H. REDSECKER, of Lebanon, is now in Europe and was tendered an informal reception and dinner at the Union League on September 25th. Mr. Redsecker has not been in his usual health for some time past and is accompanied by Mr. C. Schenck.

JOSEPH HELFMAN, editor of the *Bulletin of Pharmacy*, gave an illustrated lecture on "The Production of Serums and Vaccines," at the Philadelphia College of Pharmacy, on October 12th. The lecture was highly instructive and illustrated with a number of excellent lantern slides from photographs.

THE NATIONAL ASSOCIATION OF RETAIL DRUGGISTS held its annual convention in Washington City, during the week beginning October 5th. The attendance was the largest on record. The representation was widely scattered, there being present delegates from such distant States as Maine, Florida, Louisiana and California. Interest centered on the work of the Conference and Resolutions Committees, which were charged with the task of evolving a price-protection scheme. Differences of opinion, more apparent than real, led to what might be termed a contest, but the outcome was so eminently satisfactory to the contending elements that each afterward began to wonder what all the excitement and strenuous effort was about. The officers for 1903-1904 are as follows: President, B. E. Pritchard; Vice-Presidents, E. B. Tainter, E. H. Wolff, Sam'l L. Hilton; Secretary, Thos. V. Wooten; Treasurer, Chas. F. Mann. Executive Committee: Simon N. Jones, M. T. Breslin, L. G. Heinritz, Robert K. Smither, Thomas Voegeli, Charles Reh fuss.